



Safety Advantages of the Omron TM Collaborative Robot



Collaborative Robot Safety Standards and Compliance

ISO 10218-1:2011 and ISO/TS-15066 are safety standards and specifications that define the requirements for safe collaborative robot (cobot) applications. These requirements outline a cobot's force and speed monitoring settings based on tooling, human contact areas, and workspace conditions. Adhering to these requirements greatly reduces the risk of injury in workspaces shared with cobots. Most cobots, including the Omron TM Collaborative Robot, have mechanical and

control design features to reduce risk factors and meet these compliances. However, adherence to these requirements must take into consideration every variable in an application – not just the cobot in isolation. These variables include cobot tooling, speed and force settings, potential human contact areas, and workspace hazards. Analyzing and adjusting a cobot application to meet these requirements can be a challenging task, but two resources can make this process easier to navigate.

Collaborative Mode and Human Machine Safety Settings

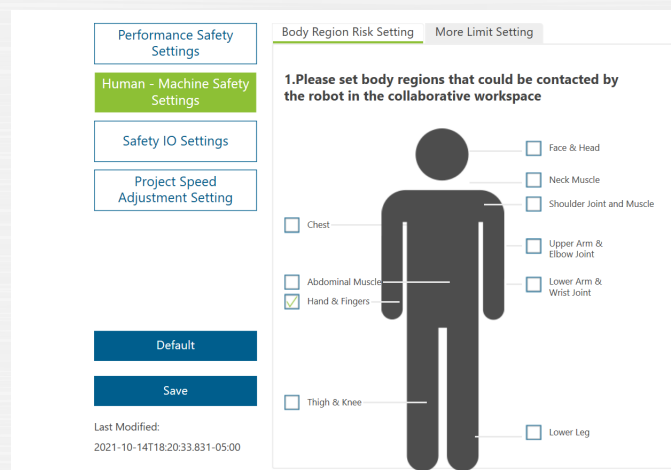
Omron TM Collaborative Robots can be programmed to halt or adapt its force and speed monitoring settings based on the proximity of people within its workspace. Safety devices, such as

Omron light curtains and safety laser scanners, can be integrated into your cobot solution to detect people entering and leaving a workspace shared with the cobot. When people are detected within



the workspace the cobot will enter Collaborative Mode, which initiates ISO compliant limited force and speed settings. Outside of Collaborative Mode, the cobot can operate in Auto Mode at higher force and speed settings. A light ring around the cobot's wrist indicates the cobot's current operating mode. Collaborative Mode allows the Omron TM Collaborative Robot to maximize productivity while safely responding to nearby workers.

TMFlow, the programming environment for Omron TM Collaborative Robots, features a guided process to generate safe speed and force limits within the Human Machine Safety settings menu. By selecting human body areas that may come into

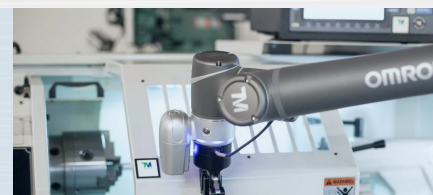


contact with a cobot, TMFlow will automatically calculate ISO-compliant performance settings for Collaborative Mode.

Risk Assessments

A Risk Assessment is required to ensure your entire cobot application is in compliance with ISO standards and specifications. Risk Assessments, designed to identify potential compliance-violating factors and offer recommended adjustments, can be performed by Omron's Safety Services group.

These adjustments may involve reconfiguring settings on the robot and adding supplementary safety devices to guarantee adherence to safety standards. Risk Assessments provide a safer work environment, mitigate operator risk and harm, and keep your facility compliant.



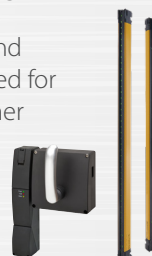
Open area safety guarding solutions

Safety rated area scanners are the most popular devices for safe guarding collaborative robots and are some of the simplest to integrate in applications with few hazards.



Gated / limited area safety guarding solutions

Safety light curtains and safety switches are used for applications with higher hazard levels or when high speed operation is used to increase productivity.



Active hazard safety guarding solutions

When collaborative operation is required with present or potential hazards then a safety enabling device like a grip switch can provide safety control.

